



## DEPARTMENT OF THE INTERIOR

### INFORMATION SERVICE

GEOLOGICAL SURVEY

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#### ZINC-COPPER DEPOSIT AT TRACY ARM, JUNEAU DISTRICT, SOUTHEASTERN ALASKA

William E. Wrather, Director of the Geological Survey, has reported to Secretary of the Interior Harold L. Ickes, that additional information on the zinc reserves of southeastern Alaska is available as the result of an examination by H. R. Gault and R. E. Fellows of a zinc-copper deposit at Tracy Arm, Juneau district. The project is a part of the Geological Survey's program to investigate the zinc resources of southeastern Alaska.

Geologic maps of the deposit have been made, and a report is in preparation.

The deposit is about 40 miles by air and 56 miles by boat south of Juneau, the nearest town and supply point. It is on the east side of Tracy Arm, 1 mile south of a prominent elbow in the arm. It is at an altitude of about 800 feet. A 1-mile trail leads from salt water to the deposit.

The deposit is in an intensely folded sequence of metamorphic rocks, which is part of a northwestward-trending belt along the western flank of the Coast Range batholith. The metamorphic rocks are schists and gneisses, which are largely or wholly recrystallized argillaceous and siliceous sedimentary rocks.

The contact of the metamorphic rocks with the quartz diorite of the Coast Range batholith to the east of the deposit is about parallel to the northwesterly trend of the metamorphic rocks. A thick quartz diorite sill crops out west of the ore deposit. It pinches out 1 mile south of the deposit and extends under Tracy Arm north of the deposit but does not continue as far as the opposite shore about a mile farther north.

The zinc-copper deposit is a replacement of the metamorphic rocks by sulfide minerals in a shear zone in those rocks 500 to 600 feet east of the quartz diorite sill. The zone is parallel to the foliation and is nearly vertical.

Some of the ore is massive, and some is banded. Some of the massive ore is finer-grained than the rest and contains relatively more pyrrhotite. The original structure of the metamorphic rocks in the massive ore is largely obliterated. In the banded ore the sulfide minerals are irregularly distributed in thin bands formed by the selective replacement of layers of the metamorphic rocks.

At most places banded ore occurs on both sides of massive ore, and the ore near the center of the body is finer grained.

The principal sulfide minerals are sphalerite, chalcopyrite, and pyrrhotite. The gangue minerals are chiefly quartz, mica, and feldspar.

The deposit is exposed by 22 surface pits and a shaft 16 feet deep over a length of 1,140 feet and through a vertical range of 110 feet. The northern 310 feet of the deposit is only slightly metallized, and the southern 830 feet probably constitutes the only ore. In general, the massive ore is thickest in the central portion of this 830-foot interval and to the north and south is thinner and discontinuous. The greatest thicknesses of banded ore are in the northern and southern portions of the 830-foot interval.

The average width of the deposit over the 830-foot length is 4.6 feet. Reserves are estimated to be about 38,000 tons per 100 feet of depth of ore containing about  $3\frac{1}{2}$  to 4 percent of zinc,  $1\frac{1}{2}$  percent of copper, 0.01 ounce of gold, and 0.50 to 0.70 ounce of silver per ton. The depth to which the deposit extends is not known.